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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,653	03/30/2007	Wolfgang Stolz	12007-0074	5779
22902	7590	01/06/2010	EXAMINER	
CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005			QUINTO, KEVIN V	
			ART UNIT	PAPER NUMBER
			2826	
			MAIL DATE	DELIVERY MODE
			01/06/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/580,653

Applicant(s)

STOLZ ET AL.

Examiner

Kevin Quinto

Art Unit

2826

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 13, 2009 has been entered.

Response to Arguments

2. Applicant's arguments filed October 13, 2009 have been fully considered but they are not persuasive. The applicant has canceled all of the previous pending claims (claims 1-32) and added new claims 33-36. In addition, eight documents were cited in order to support the remarks (p. 7 of the response) in which the applicant's representative states that they were published by the inventors. However ten documents were included with the response. The following were not properly cited: Fallahi et al., IEEE Photonics Letters, Vol. 20, No. 20, October 2008 and Fan et al., Applied Physics Letters 91, 131114, 2007. None of the cited documents explicitly cite the claimed temperature range for the MOVPE process. As for the new claims, the applicant argues (p. 9 of the response) that the eight cited publications and the actual testwork rebut any prima facie case of obviousness based on Ellmers et al., ("GaAs-

based VCSEL-structures with strain-compensated (GaIn)As/Ga(PAs)-MQWH active regions grown by using TBAs and TBP," Journal of Crystal Growth, 1998, Elsevier Science B.V., 195, p. 630-636). The examiner respectfully disagrees since Ellmers cites a range which overlaps with the claimed range. As discussed in the previous Office action, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976) and *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) support a prima facie case of obviousness in such circumstances. Thus claims 33-36 are below rejected under 35 U.S.C. 103(a) as being unpatentable over Ellmers et al., ("GaAs-based VCSEL-structures with strain-compensated (GaIn)As/Ga(PAs)-MQWH active regions grown by using TBAs and TBP," Journal of Crystal Growth, 1998, Elsevier Science B.V., 195, p. 630-636).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellmers et al., ("GaAs-based VCSEL-structures with strain-compensated (GaIn)As/Ga(PAs)-MQWH active regions grown by using TBAs and TBP," Journal of Crystal Growth, 1998, Elsevier Science B.V., 195, p. 630-636).

5. In reference to claim 33, Ellmers ("GaAs-based VCSEL-structures with strain-compensated (GaIn)As/Ga(PAs)-MQWH active regions grown by using TBAs and TBP," Journal of Crystal Growth, 1998, Elsevier Science B.V., 195, p. 630-636) discloses a process which meets the claim. Figure 2 of Ellmers shows a structure formed by a method for the production of semiconductor layer structures comprising at least one strain compensating layer for surrounding layer(s) of a semiconductor device. The strain compensating layer(s) are semiconductor layers strained by tensile stress. The layer succession features one or several layers with arsenic and/or phosphorus by use of TBAs sources and/or TBP sources (abstract, p. 631-632). The strain compensating layer(s) are achieved and compressively or tensilely strained by MOVPE by use of TBA (tertiary butyl arsine) and TBP (tertiary butyl phosphine). With regard to the claimed temperature range, Ellmers discloses the use of MOVPE at the temperature of 590-625°C (p. 632). The examiner would like to note:

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

Thus claim 33 is not patentable over Ellmers.

6. With regard to claim 34, the strain-compensating layers are deposited within layers to be compensated in their individual or common strain (abstract, p. 631-632).
7. With regard to claim 35, Ellmers makes it clear that aluminum-containing AlGaAs/AlAs layers, slight compressive strain can be tensilely compensated by aluminum due to low concentrations of phosphorus.
8. With regard to claim 36, compression-strained semiconductor layers are compensated for their strain (p.631).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quinto whose telephone number is (571) 272-1920. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin Quinto/
Examiner, Art Unit 2826

/Sue A. Purvis/
Supervisory Patent Examiner, Art Unit 2826